

WHAT IS CLAIMED IS:

1. An apparatus comprising a head-up display, said head-up display including:

5 an image source which outputs radiation representing a visible image; and

optical structure for directing the radiation from said image source to a viewing location, said optical structure including first and second reflective surfaces having first and second reflection characteristics which are different, and being selectively operable in one of first and second modes, said first mode including reflection of radiation from said image source by said first reflective surface according to said first reflection characteristic, and said second mode including reflection of radiation from said image source by said second reflective surface according to said second reflection characteristic.

20 2. An apparatus according to Claim 1, wherein said second reflection characteristic involves a smaller area of reflection than said first reflection characteristic.

25 3. An apparatus according to Claim 2, wherein said first reflection characteristic involves a greater degree of magnification than said second reflection characteristics.

30 4. An apparatus according to Claim 3, wherein said second reflection characteristic involves reflection with a higher degree of reflectivity than said first reflection characteristic.

5. An apparatus according to Claim 2, wherein said second reflection characteristic involves reflection with a higher degree of reflectivity than said first reflection characteristic.

5

6. An apparatus according to Claim 1, wherein said first reflection characteristic involves a higher degree of magnification than said second reflection characteristic.

10

7. An apparatus according to Claim 1, wherein said second reflection characteristic involves reflection with a higher degree of reflectivity than said first reflection characteristic.

8. An apparatus according to Claim 1,  
wherein radiation which reaches said viewing  
location in said first mode according to said first  
reflection characteristic has been reflected by said  
first reflective surface but is free of reflection by  
said second reflective surface; and

wherein radiation which reaches said viewing  
location in said second mode according to said second  
reflection characteristic has been reflected by said  
second reflective surface but is free of reflection by  
said first reflective surface.

9. An apparatus according to Claim 8, including a  
part which has said first and second reflective surfaces  
thereon, and which is supported for movement between  
first and second positions, said part being in said first  
position in said first mode and being in said second  
position in said second mode.

10. An apparatus according to Claim 9,  
wherein said part is made of a material transmissive  
to visible radiation;

5 wherein said first and second reflective surfaces  
are provided on opposite sides of said part;

wherein said first reflective surface is partially  
reflective to radiation from said image source;

10 wherein radiation from said image source reaches  
said first reflective surface before said second  
reflective surface so that a portion of the radiation is  
reflected by said first reflective surface and the  
remainder of the radiation travels through said part to  
said second reflective surface; and

15 wherein said first and second reflective surfaces  
are arranged at an angle to each other so that the  
portion of the radiation from said image source which is  
reflected by said first reflective surface travels in a  
direction different from the portion of that radiation  
which is reflected by said second reflective surface.

20 11. An apparatus according to Claim 10, wherein  
said movement of said part between said first and second  
positions is pivotal movement.

25 12. An apparatus according to Claim 10, wherein  
said first reflective surface reflects a substantially  
smaller portion of the radiation from said image source  
than said second reflective surface.

30 13. An apparatus according to Claim 10, wherein  
said first and second reflective surfaces have different  
optical prescriptions.

14. An apparatus according to Claim 10, wherein said second reflective surface is substantially smaller in size than said first reflective surface.

5

15. An apparatus according to Claim 14, wherein said second reflective surface includes a highly reflective coating provided on said part, and reflects substantially all of the radiation from said image source which reaches said second reflective surface.

10

16. An apparatus according to Claim 15, including a further coating made of a material which absorbs light, and which is provided over and is larger than said highly reflective coating.

15

17. An apparatus according to Claim 14, wherein said first reflective surface provides a higher degree of magnification than said second reflective surface.

20

18. An apparatus according to Claim 1, wherein said first and second reflective surfaces are each configured to minimize an amount of ambient light from externally of said head-up display which is reflected thereby in a direction toward said image source.

25

19. An apparatus according to Claim 1, including a vehicle, said head-up display being a part of said vehicle, and a windshield of said vehicle serving as a reflective surface which is a part of said optical structure.

30

20. A method of operating a head-up display, comprising the steps of:

5 using an image source to output radiation which represents a visible image;

providing first and second reflective surfaces respectively having first and second reflection characteristics which are different; and

10 directing the radiation from said image source to a viewing location according to a selected one of first and second modes, said first mode including reflection of radiation from said image source by said first reflective surface according to said first reflection characteristic, and said second mode including reflection 15 of radiation from said image source by said second reflective surface according to said second reflection characteristic.

20 21. A method according to Claim 20, including the step of configuring said second reflection characteristic to utilize a smaller area of reflection than said first reflection characteristic.

25 22. A method according to Claim 21, including the step of configuring said first reflection characteristic to have a higher degree of magnification than said second reflection characteristic.

30 23. A method according to Claim 22, including the step of configuring said second reflection characteristic to involve a higher degree of reflectivity than said first reflection characteristic.

24. A method according to Claim 21, including the step of configuring said second reflection characteristic to involve a higher degree of reflectivity than said first reflection characteristic.

5

25. A method according to Claim 20, including the step of configuring said first reflection characteristic to involve a higher degree of magnification than said second reflection characteristic.

10

26. A method according to Claim 20, including the step of configuring said second reflection characteristic to involve a higher degree of reflection than said first reflection characteristic.

15

27. A method according to Claim 20, including the steps of:

causing radiation traveling to said viewing location in said first mode according to said first reflection characteristic to be reflected by said first reflective surface but to be free of reflection by said second reflective surface; and

causing radiation traveling to said viewing location in said second mode according to said second reflection characteristic to be reflected by said second reflective surface but to be free of reflection by said first reflective surface.

28. A method according to Claim 27, including the steps of:

providing said first and second reflective surfaces on opposite sides of a part which is supported for movement between first and second positions; and

5 positioning said part in said first position during said first mode and in said second position during said second mode.

10 29. A method according to Claim 20, wherein said step of providing said first and second reflective surfaces includes the step of configuring each of said first and second reflective surfaces so as to minimize an amount of ambient light from externally of said head-up display which is reflected thereby in a direction toward 15 said image source.

30. A method according to Claim 20,  
including the step of providing said head-up display  
20 in a vehicle having a windshield; and

wherein said directing step includes the step of using an inner surface of said windshield to reflect radiation from said image source in each of said first and second modes of operation.